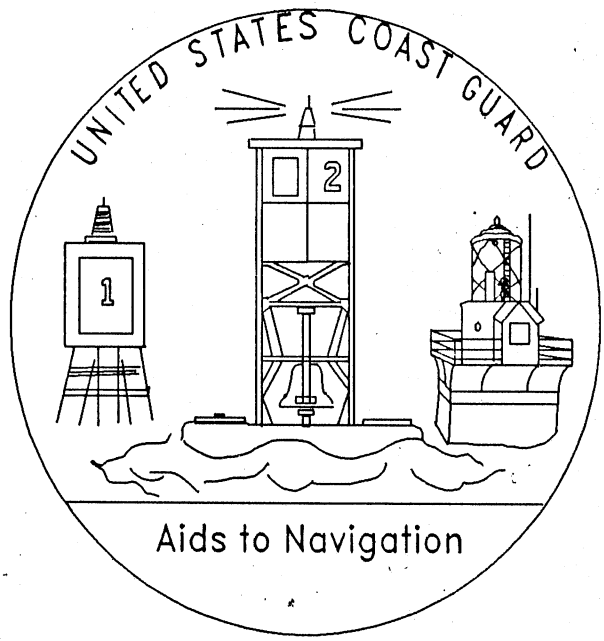
RECEIVED
JUL 29 1996
BRIDGE SECTION

US Department
of Transportation

United States
Coast Guard

Waterway Analysis and Management System Completion Guide



Waterways Analysis and Management System Completion Guide

Overview

What this is

This guide is designed to provide field units and district (oan)s with a step by step guide to completing a Waterways Analysis and Management System (WAMS) report.

What this is not

This aid does not constitute official Coast Guard policy.

District (oan)s may alter this manual, provide additional instruction, or delete segments as required for their individual WAMS programs.

In this guide

This guide is divided into eight sections.

Section	Title
1	WAMS Overview and Flowchart
2	Before You Start Your Project
3	Initial Actions
4	Data Collection
5	User Input and Interaction
6	Data Analysis
7	WAMS Report Compilation
8	Post Report Processing

Credit

This guide is the result of the combined efforts of each district (oan)'s WAMS officer, feedback from field units, Headquarters (G-NSR), and the staff of the National Aids to Navigation (NATON) School.

First printing January 1996

Comments/ Concerns

If you have any questions, comments, or concerns regarding this guide, contact your district WAMS officer or the NATON School.

Section 1 – WAMS Overview and Flowchart

Intro

Our nation's waterways presently contain close to 100,000 federal and private aids to navigation. As AtoN professionals, we are responsible for ensuring our waterways are the safest, most effective, and most efficient waterways possible. One of the tools we have to assist us in our endeavors is the WAMS.

Goals

The Waterways Analysis and Management System (WAMS) is a tool for managing competing interests and uses of the United States's Waterways. Some of the aspects addressed by WAMS are:

- budget
- safety
- user input
- standardization
- efficiency
- effectiveness

Purpose

According to the AtoN Admin. Manual, WAMS shall ensure that:

- all aids are required as necessary elements of the AtoN system,
- changes to augment and/or reduce aids are made when needed to meet changing needs in the waterway,
- aids conform to system criteria in the AtoN Administration Manual,
- aids and the AtoN system provide their required operational characteristics,
- waterways are examined for the effectiveness of traffic management mechanics, and
- to assist the Program Manager in fulfilling his waterways management responsibilities.

WAMS Report

The WAMS report is the primary tool for managing the AtoN in our waterways. WAMS reports are lengthy documents that require a substantial amount of planning and execution on the part of the WAMS author. This guide will assist the author in completing a WAMS report for a waterway.

continued on next page

Note

A WAMS report is neither a one person or one unit project. The most successful WAMS is the result of continuous interaction between the WAMS author, the WAMS team (whether a single or multi-unit team) and the various waterway users. The worst WAMS are those produced at the last minute by one person trying to meet a deadline. PLAN AHEAD AND USE YOUR RESOURCES!!!

WAMS Flowchart/Checklist

Use this space to insert your district specific flowchart or checklist. If none is provided, use the steps in this guide in the order provided.

Section 2 – Before You Start Your Project

Intro

Before leaping into a WAMS project, several steps need to be taken by both the district (oan) and the unit completing the WAMS.

Note

Regardless of the scope of your WAMS, completion of the following steps is necessary for the timely and efficient completion of the WAMS report.

In this section

This section is divided into six steps.

Step	Title
1	Review WAMS Submission Schedule
2	WAMS Report Assigned to a Unit
3	Contact District (oan) at Outset of Project
4	Advertise WAMS in the LNM
5	Review WAMS References and Instructions
6	Review Previous WAMS Reports for Designated and Surrounding Waterways

Review WAMS Submission Schedule

Introduction The first step in completing any WAMS report is determining when the report is due. The WAMS submission schedule provides this information.

Defined The WAMS submission schedule is a district generated document that provides a listing of all waterways within a district, the date the WAMS are due for each waterway, the unit(s) responsible for completing each WAMS, and other pertinent information.

Note The content of the WAMS submission schedule varies by district.

Actions District (oan)s shall:

- ♦ publish and maintain the WAMS submission schedule, &
- ♦ inform units when a WAMS report is due.

Field units shall:

- ♦ maintain a copy of the WAMS submission schedule.

Note Several districts publish the WAMS report submission schedule as part of their district SOP vice as a separate instruction.

WAMS Report Assigned to a Unit

Duty

This portion of the WAMS process is the responsibility of the District WAMS officer.

Introduction

The timely assignment of a WAMS is critical in getting a complete and effective product together. The proper supervision and assignment of a WAMS is vital in adhering to the time frames to which waterways are required to be analyzed.

Sources

- AtoN Administration Manual, COMDTINST M16500.7
- District AtoN SOP
- District WAMS Submission Schedule
- Local Notice to Mainers

General Tasks

- Review the WAMS Submission schedule.
- Six months prior to the WAMS due date: Send a letter or e-mail to the appropriate unit notifying them of the required completion date. For larger waterways, you may wish to notify the unit earlier than six months.
- Publicize WAMS in the Local Notice to Mariners for a sufficient amount of time to solicit the appropriate and relevant input of the waterway users.
- Verify that the WAMS covers ALL appropriate LLNRs, and that no new aids will be missed.
- Check with the unit to make sure they have a copy of the initial WAMS to use as a reference for all review WAMS.
- Send all pertinent information to the unit concerning the waterways which the WAMS covers.

Sample

A sample of a WAMS assignment letter can be found on the next page.

Commander
Ninth Coast Guard District
Cleveland, OH
Phone: (216) 555-1212

16519

From: Commander, Ninth Coast Guard District
To: Commanding Officer, USCGC BUCKTHORN (WLI 642)
Via: Commander, Coast Guard Group Sault Ste Marie, MI

Subj: WHITEFISH BAY WATERWAY ANALYSIS

1. You are assigned the responsibility for completing a Waterway Analysis and Management System (WAMS) review of Whitefish Bay (waterway number 09530) from American Canal Southeast Pierhead Light (LLNR 14195) to Little Lake Harbor Light 3 (LLNR 14545) prior to 01 March 1996. This will be a review of the previous WAMS completed 01 March 1993 by BUCKTHORN. If a copy of this WAMS is needed by your unit, please contact the District WAMS Officer.

2. As we move into the review phase of previously completed WAMS, I would like to insure that items like private aids, charts, the Coast Pilot, and bridges receive a little closer look. Our experience indicates that federal aid changes are remaining valid over the first review period and this affords us the opportunity to look more closely at other parts of the waterway and at associated publications.

3. With the recent attention directed towards the Vidal Shoals Range, I would like you to take an in depth look at the pros and cons of the changes that were made, and make recommendations based on your findings.

4. I will begin advertising your analysis of the aid system in the Local Notice to Mariners beginning November 1995. Users will be asked to submit comments directly to you by 01 February 1996. A copy of any proposals or user comments received here will be forwarded to you.

5. Direct any questions or requests for assistance to the District WAMS Officer, LTJG Corey Henige at (216) 522-3992.

P. D. BARLOW
By direction

Contact District (oan) at Outset of Project

Action

♦ Units should contact the district WAMS officer as soon as practicable after being assigned a WAMS study.

Why??

Continuous communication between the unit and the district WAMS officer can be a critical step in ensuring a complete and effective WAMS study.

The initial conversation between the unit and district WAMS officers should help answer questions and uncover potential problems.

What to Ask

The following are ~~the~~ some of the most commonly asked questions:

♦ Did (oan) receive or collect any user comments for the waterway being studied?
♦ Does (oan) have any specific concerns or questions that should be addressed in the WAMS that have not already been identified?
♦ Can the deadline be adjusted if required?
♦ Is the format used in the last WAMS adequate/acceptable?
♦ Were there any weak sections in the last WAMS report?
♦ Are there any projects pending for the waterway?
♦ What is the status of AC&I funding for uncompleted but approved projects from the last WAMS?
♦ Who assigned the previous/original criticality?

Advertise WAMS in LNM

Introduction Advertisement of WAMS in the Local Notice to Mariners (LNM) is an essential part of every WAMS study. Many users of the waterway that would normally not be reached by interviews alone can be reached by advertising the WAMS in the LNM .

Duty Districts and units shall coordinate to ensure the WAMS information is published in the LNM.

Note Many district (oan)s will automatically generate a LNM when the WAMS is assigned. However, some districts require the units to submit a letter or e-mail requesting a LNM be published.

Guidance The following general notes apply to units which must request a WAMS advertisement be placed in the LNM.

- Keep the quote short and simple.
- Send a written letter or e-mail to the district requesting advertisement of the WAMS study in the LNM.
- Keep a copy of the letter or e-mail on file to put in the final WAMS report.
- The request should be published for three to four months in order to reach as many users as possible.

Sample A sample of a LNM request letter can be found on the next page.

Commanding Officer
USCGC RED CEDAR
Portsmouth, VA
Phone: (804) 555-1212

16519

From: Commanding Officer, USCGC RED CEDAR (WLM 688)
To: Commander, Fifth Coast Guard District (oan)

Subj: REQUEST FOR WAMS SOLICITATION IN LOCAL NOTICE TO MARINERS

1. Please publish the following item in your Local Notice to Mariners for three months:

Quote:

The Coast Guard is conducting a Waterways Analysis and Management System (WAMS) study of the James River. The study focuses on the area's aids to navigation system, waterborne commerce, marine casualty information, port/harbor resources, emergency response plans, routine and emergency communication capabilities, and future development projects. Any interested company or individual wishing to provide comments or participate in a user survey should contact:

Commanding Officer
USCGC RED CEDAR (WLM-688)
Portsmouth, VA
Attn: WAMS Officer
(804) 555-1212

Unquote.

2. Your assistance in this matter is greatly appreciated.

I. B. SALTY

Review WAMS References and Instructions

Introduction

Collect and review all applicable WAMS references and instructions.

These instructions will assist you in devising your plan of attack and understanding your WAMS responsibilities and requirements.

Best Sources

The first references you should review are:

- Chapters 3 and 4 and Enclosure 5 - AtoN Administration Manual (COMDTINST M16500.7)
- District AtoN Standard Operating Procedures (SOP)
- Other District WAMS instructions

Other Sources

Other sources to have available prior to commencing your WAMS:

- AtoN Technical Manual (COMDTINST M16500.3A)
- AtoN Seamanship Manual (CG 222-2)
- AtoN Positioning Manual (COMDTINST M16500.1B)
- Radionavigation Manual (COMDTINST M16500.13)
- Bridge Administration Manual (COMDTINST M16590.5)
- Lighthouse Maintenance Management Manual (COMDTINST M16590.5)
- Lighthouse PMS (COMDTINST M16500.10)
- Luminous Intensities Manual (COMDTINST M16510.2)
- 33CFR74
- 33CFR64
- Waterway Design Manual (RRF Program) CG-D-18-92
- Range Design Computer Program Manual (COMDTINST M16500.4A)
- Automation Technical Guidelines (COMDTINST M16500.8)

Review Previous WAMS Reports for Designated and Adjoining Waterways

Action

Review prior WAMS reports for the waterway and all adjoining waterways.

Why?

If available, previous WAMS reports and WAMS reports for adjoining areas can be the best source of information for completing a WAMS.

Use

Prior WAMS will enable you to:

- obtain a point of reference from which to start,
- determine the scope of your project,
- determine if changes are pending, and
- formulate an idea of what the waterway and previous WAMS reports look like and to determine if previous WAMS recommendations have been acted upon or completed.

Section 3 – Initial Actions

Intro

Once you have your background steps completed and have formulated a game plan, it is time to get started on your project. Since a WAMS project is a lengthy process, you need to attack it systematically. The initial actions you take will help set you up for success in the later stages of your process.

In this section

This section is divided into seven steps.

Step	Title
1	Review all Applicable Publications
2	Compile Aid Assignment List
3	Methods for Obtaining User Information
4	Announce WAMS on Radio and in Newspaper
5	Develop List of Waterway Users
6	Develop Mailing List
7	Draft User Questionnaire

Review all Applicable Publications

Intro

During your thorough review of maritime publications, you are likely to uncover long-standing errors. The publishers of these documents rely heavily on user input to keep them up-to-date. If you find mistakes, notify the appropriate agency.

PUBs to Review

The following is a list of publications to review prior to and while conducting your WAMS.

- Light List
- Coast Pilot
- List of Lights
- Code of Federal Regulations, Title 33, Navigation and Navigable Waters, specifically Subchapter C (Aids to Navigation), Subchapter I (Anchorages) & Subchapter P (Ports and Waterways Safety)
- Sailing Directions
- Radio Navigational Aids, Pub 117
- CG District Standard Operating Procedures (SOP)
- AtoN Technical Manual, COMDTINST M16500.3(series)
- AtoN Admin Manual, COMDTINST M16500.7(series)
- Fleet Guides
- Army Corps of Engineers Publications: Waterborne Commerce of the United States and the General Design Memorandum (GDM)

What to Look For

In the Light List:

- Review the Light List to ascertain that all aids are reviewed in the assigned waterway. Waterways are usually bounded by light list numbers. Approximately every 5 years, COMDT(G-OPN) reassigns light list numbers because of added or deleted aids. During this process, gaps may be created within the designated WAMS waterways which allows some aids to be missed.

- Review the Light List for each federal and private aid to ensure that it is advertised correctly; i.e. in accordance with your on scene inspection and the ATONIS Aid Form.

- List any discrepancies in the Light List in your WAMS under the Action Summary. Usually the District (oan) staff will correct the Light List and publish the changes in the LNM.

continued on next page

Review all applicable Publications, continued

In the Coast Pilot:

- Review the Coast Pilot for each harbor or port and verify whether commercial facilities, bridges, structures, communications, small boat facilities, navigation regulations, and federal & private aids are accurately portrayed.

- List any Coast Pilot discrepancies under the Action Summary section of your WAMS.

- Fill out the Coast Pilot Report located in the back of the Coast Pilot and mail directly to the National Ocean Service as listed on the report. The National Ocean Service will make the changes and then they will notify the district (oan) staffs so they can incorporate into the LNM. Note in your WAMS that you have forwarded the Coast Pilot Report.

Other listed publications:

- During the course of your WAMS, you'll probably come in contact with the rest of the above listed publications to review. Some of them will be helpful to gather data from and/or assist you in writing your WAMS.

Compile Aid Assignment List

Intro

ATONIS can be used to generate a list of aids in a specific waterway. This list will be valuable ~~when~~ towards evaluating the adequacy of the existing AtoN configuration.

Note

You must install two files beforehand. To do this, obtain the files from (oan), and place wamslist.p in the ATONIS directory and store macro wamslist in your Document Designer directory.

Procedure

The following procedure explains how to generate the Aids by Waterway listing through ATONIS.

Step	Action
1	From the ATONIS main menu select the user function and type "wamslist.p" in the field.
2	Enter the waterway number that you wish to generate the list for.
3	Go to DocDesigner and recall macro "wamslist".
4	Print or review the generated file called wamslist.rpt

Instruction

District (oan) should provide this list to the reviewing unit for use throughout the review process.

AIDS LISTING BY WATERWAY

Waterway No: 1465 Waterway: SAG HARBOR Criticality: NN Group: GRU MORICHES 10/03/9

Aid Name / LLNR / Atonis Aid No.	Operation / Pri Unit / Sec Unit	Auth Hull / OnScene / Seasonal	Lt Char / Nom Range / Power Typ	AP Lat / AP Long / SSIG	Depth / Bottom / Fog Det	Lamp / Lanter / Daymar.
SAG HBR BKW LT 1SH	PERM	?	FL G 2.5S	41 00 32.107	0	.77A
28325.00	ANT MORICHES	N/A	4	72 17 40.164	N/A	155
33012	N/A	N/A	SOLAR	?	NO	SG
SAG HBR SPECIAL BY	PERM	5CI	N/A	41 00 41.047	7	N/A
28330.00	ANT MORICHES	5CI	0	72 17 21.334	MUD	N/A
33016	N/A	N/A	N/A	N/A	N/A	N/A

Methods for Obtaining User Information

Intro

Obtaining information from your users is the most critical part of the WAMS process. Exhausting the various methods for gathering this input will make your job as the WAMS author much more simple.

Options

The following are a few of the most prevalent options for contacting your users.

- Advertise in the Local Notice to Mariners
- Mail surveys
- Conduct phone surveys
- Conduct radio surveys of passing vessels
- Advertise through the media
- Meet your users face to face
- Conduct public meetings

The majority of these options will be discussed in further detail in this job aid.

Note

Be creative in your data gathering means. The list presented above is by no means exhaustive of the various methods other WAMS authors have successfully used. Any method which obtains the data that you need is appropriate for your efforts.

Announce WAMS on Radio and in Newspaper

Intro

Advertisement of WAMS on the radio and in the newspaper is an essential and intricate part of every WAMS study. Many users of the waterway can be reached, by advertising the WAMS, that would normally not be reached by interviews alone.

General

The following general notes apply to advertising the WAMS study on the radio and in the newspaper:

- Get a list of all radio stations and newspapers in the area of the study and send requests to the public service departments of each (coordinate with (dpa)).
- Send a short and simple letter to the radio stations and newspapers requesting advertisement of the WAMS study over the radio or in the newspaper.
- Keep a copy of the letter on file to put in the final WAMS report.
- The request should be read for several months over the radio and advertised for several months in the newspapers. Each area is going to be different and close coordination with the public service departments and editorial offices will be essential to ensure success.

Sample

A sample request quote is included below:

- Quote:

  The Coast Guard is conducting a Waterways Analysis and Management System (WAMS) study of the SPECTER waterway. The study focuses on the area's aids to navigation system, waterborne commerce, marine casualty information, port/harbor resources, emergency response plans, routine and emergency communication capabilities, and future development projects. Any company or individual wishing to provide comments or participate in a user survey should contact:

  Commanding Officer
  USCGC BOND (WLB 007)
  123 Main Street
  Anywhere, Any State 00000
  Attn: WAMS Officer
  Phone: (555) 555-5555

Unquote.

Develop List of Waterway Users

Intro

Determining users and developing a comprehensive user list are the first steps in obtaining user input.

Possible Users

The following is a list of possible users and interested organizations that may be found in a waterway.

- Pilot's Associations
- Harbor/Port Authorities
- Commercial Fishing Groups
- Army Corps of Engineers
- CG AtoN Teams
- CG Stations
- CG CEUs
- CG Marine Safety Offices
- CG District (ob) Bridges
- CG District (osr)
- Private Aid Permittees
- Charter Boats
- Law Enforcement Agencies
- Environmental Interests
- US Military Groups
- Other Commercial Groups
- Historic Preservation Groups
- Coast Guard personnel formerly stationed in area
- Tugboat Associations
- State Boating Offices
- Yacht Clubs
- NOAA/NWS
- CG Cutters
- CG Groups
- CG Auxiliary
- CG District (oan)
- CG District (m)
- Recreational Boaters
- Diving Groups
- Cargo Vessels
- Political Interests
- State Commerce Office
- Maritime Associations
- Local Government

Using this List

This list is not all inclusive. The WAMS author should customize this list and generate a register of phone numbers and addresses for the waterway.

Develop Mailing List

Introduction Once the applicable users of the waterway have been identified, the WAMS author must compile a complete list of addresses and phone numbers for these users.

Keep It Simple A thorough mailing list and phone list usually can be compiled easily by contacting a few key sources vice attempting to find each user on an individual basis.

Sources The following resources normally have mailing lists or lists of points of contact for waterway users.

Source	Information Available
CG Aux	Yacht Clubs, Marinas, Safe Boating Groups, Local Waterway Users
CG oan	Political Interest Groups, Historic Preservation Groups, Pilot and Tug Assoc., Maritime Assoc., Private Aid Permittees
CG MSO	Facilities, Environmental Concerns, Commercial Groups, Maritime Assoc.
State Boating	Registered Vessels, State Law Enforcement
State Commerce	Commercial interests located in waterway.

Note Do not feel restricted when searching for sources. The Yellow Pages of the telephone book, for example, may be the best place to start.

Draft User Questionnaire

Introduction A well drafted questionnaire is required to ensure that the maximum amount of correct and useful information is obtained from the waterway user.

General The following general notes apply to questionnaires:

- Keep the questionnaire simple and reasonably short.
- You may need to draft different questionnaires for different users. Do not feel constrained to drafting only one questionnaire.
- Draft a questionnaire even if you are going to be conducting a face to face meeting, phone interview, or user ride.
- Draft the questionnaire as if you were the waterway user.
- For questionnaires distributed by mail, ensure your name and the unit's name, address, and phone number are readily visible on the questionnaire.
- Ensure you ask your user for a description of their characteristic vessel (i.e. length, beam, height of eye, etc.)

Samples Several sample questionnaires and lists of commonly asked questions are included in the following pages.

Sample #1

A Survey for the Waterways of & Approaches to SAN DIEGO

This Questionnaire is your opportunity to recommend changes to improve Aids to Navigation, federal publications, and nautical charts in the San Diego area. There are 4 parts to this survey: 1) Personal information – this information will help us if we need amplifying information or if you would like a response to your comments; 2) Numerical Ratings – answers in this section will give us a general overview of how the current waterway systems meet your needs; 3) Waterway Demographics – gives us the answers to, "who uses the waterway, when, and for what reasons?"; and 4) Comments – space for you to make specific recommendations and to clarify your responses in sections 2 and 3.

---

1). PERSONAL INFORMATION:

Name: Address:

Organization:

Phone:

2). NUMERICAL RATINGS:

Please rate the following areas on a scale of 1 to 7: 1 being that the item in question does not meet your needs and requires significant changes before it will & 7 being that the item in question meets your needs and cannot be improved (please provide explanations in the comments section).

	Doesn't meet Needs						Meets Needs
a. The Aids to Navigation Systems (lights, buoys, ranges, radio beacons, etc.) in the following areas:							
San Diego Bay Channel	1	2	3	4	5	6	7
San Diego Shelter Island Yacht Basin	1	2	3	4	5	6	7
San Diego Harbor Island Yacht Basin	1	2	3	4	5	6	7
Glorietta Bay	1	2	3	4	5	6	7
San Diego South Bay	1	2	3	4	5	6	7
Mission Bay	1	2	3	4	5	6	7
b. The Broadcast Notice to Mariners (Ch 22 VHF/FM)	1	2	3	4	5	6	7
c. The Coast Guard District 11 Local Notice to Mariners	1	2	3	4	5	6	7
d. The Coast Pilot, Volume 7	1	2	3	4	5	6	7
e. The Charted Traffic Patterns	1	2	3	4	5	6	7
f. NOAA/NOS Chart 18740	1	2	3	4	5	6	7
g. NOAA/NOS Chart 18765	1	2	3	4	5	6	7
h. NOAA/NOS Chart 18772	1	2	3	4	5	6	7
i. NOAA/NOS Chart 18773	1	2	3	4	5	6	7
j. Tide and Current Tables	1	2	3	4	5	6	7
k. Hydrographic Surveys	1	2	3	4	5	6	7
l. Bridges	1	2	3	4	5	6	7
m. Coast Guard Regulated Navigation Areas	1	2	3	4	5	6	7
n. Use of CAPT of the Port Authority/Control Measures	1	2	3	4	5	6	7
o. Anchorage Areas & Regulations	1	2	3	4	5	6	7

3). **WATERWAY DEMOGRAPHICS:**

a. What are the largest vessels you transit on in each waterway?

	Type	Length	Breadth	Draft	DWT
S. D. Bay Channel:					
S. D. South Bay:					
Shelter/Harbor Is.:					
Glorietta Bay:					
Mission Bay:					

b. How often do these vessels transit?

c. What other vessels do you transit with on each waterway (and frequency)?

d. What cargoes do you transport?

e. What affect does weather have on vessel transits?

f. Do currents have a significant impact on vessel transits?

g. What is the most difficult part of the transit into San Diego?

4). **COMMENTS:**

a. Please indicate any way that this survey could be made better (formatting, concerns that were not addressed, etc.):

b. Please indicate other organizations, groups, or individuals (include addresses and points of contact if you have them) that may be interested in this survey:

c. Additional Comments (including amplifying information from section 3):

Sample #2

NAME _____

PHONE #_____

NAME OF SHIP(S)_____

Ship Information Length:_____
Draft:_____
Tonnage:_____
Type:_____
Cargo:_____

1. If your vessel carries any hazardous cargo, (oil, LPG, chemicals) what are they and what type of containers are they in?

2. Do you use a pilot?

3. Do you use tugs, if not, are they available?

4. How often do you transit the harbor in daylight?

5. How often do you transit the harbor at night?

6. Does the weather (wind) ever cause a problem to navigation?

7. Are currents/tides ever a problem? if so, how?

8. When transiting the harbor how much vessel traffic do you usually encounter?

9. If there is a vessel traffic service please comment on their effectiveness.

10. Which aids do you feel are the most useful and why?

11. What aids do you think are the least useful and why?

12. Are there any aids that are so important that if they were missing that you feel you wouldn't be able to safely navigate the harbor?

13. What do you feel is the most difficult or dangerous part of the waterway?

Sample #2, continued

14. Please briefly describe any collisions or near collisions you have had, heard about or seen. Please include where they took place (use chartlet) and when.

15. What changes would you like to see in the harbor?

16. Do you ever anchor in or near the harbor (use chartlet)? if so, where and please comment on the anchorage?

17. How long have you been familiar with this harbor?

Sample #3

Name _____ Date _____

Maritime Organization _____

For each question, please circle or answer all that apply.

On what types of vessels do you transit?

RECREATIONAL COMMERCIAL LICENSED UNLICENSED

MOTOR SAIL PSGR FERRY FISHING TUG/BARGE

DEEP DRAFT OTHER_____

How many years of navigation experience do you have? _____

Please list the following specifications of the vessel on which you transit most often:

LENGTH	_____	GROSS TONS	_____
BEAM	_____	NET TONS	_____
DRAFT	_____	HEIGHT OF EYE	_____
TYPE OF CARGO	_____	NO./PSNGRS	_____

When do you transit these waterways?

WARMER MONTHS ONLY (_____ to _____) YEAR-ROUND

DAY NIGHT RESTRICTED VISIBILITY

What methods & tools do you use for navigation?

CHARTS SC CHARTS/CHARTLETS GYRO COMPASS MAGNETIC COMPASS

RADAR RADIO DIRECTION FINDER RADIO BEACONS LORAN

SATNAV GPS SEARCHLIGHTS FATHOMETER LOCAL KNOWLEDGE

Do you receive the Local Notice to Mariners? (Yes / No)
If you do not but would like to, please call XXX-XXXX and leave your name & address.

Sample #3, continued

Please fill out one of these surveys for each of the aids listed which you use to navigate. This information would be most beneficial if it were returned to the Coast Guard prior to 19 JAN 96.

Aid _____ LLNR _____

THE COAST GUARD SEEKS CONTINUOUS IMPROVEMENT TO THE SYSTEMS OF AIDS TO NAVIGATION ON NEW ENGLAND'S AND NEW YORK'S WATERWAYS. THANK YOU FOR YOUR RESPONSE TO THIS SURVEY. YOUR INPUT WILL HELP ENSURE SAFE AND EFFICIENT WATERWAYS.

When answering the following questions, it may help to keep in mind that an aid may be used to verify or confirm heading, location, drift, weather conditions, etc. without being necessary to obtain this information since the information is more accurately and more reliably obtained from another method. If you are undecided which of the following uses of the aid are critically informative, consider whether your vessel could safely navigate if that light did not exist.

Mark all that apply. When I pilot/navigate, this aid is used:

___a. To adjust course when approaching a port from sea. At what distance? _____
___b. To ensure that a shoal area is avoided. At what distance? _____
___c. To aid in determining location: (At what distance are applicable methods conducted?)
  ___1. Relative to a channel. _____
  ___2. By using aid as a target for compass bearings. _____
  ___3. By using aid as a radar target to determine range. _____
  ___4. Other. (Please explain) _____
___d. As part of a natural range to determine set/drift. Day and/or night? At what distance? _____
___e. To indicate precisely when to begin a turn of 25 degrees or more.
___f. To verify position when transiting along the coast.
___g. As an object for conducting running fixes.
___h. Other. (Please explain)
  _____

Does the existing flash characteristic meet your needs? (Yes / No)
Is any duration of darkness too long, to the extent that mariners are often anxiously waiting for the light to flash? (Yes / No)
Does the aid blend in with existing background light such that mariners are often anxiously "hunting" for the aid? (Yes / No)
Does the characteristic of the aid make the aid appear similiar to other objects in the surrounding field of vision, such as land lights or other vessels? (Yes / No)

Describe how useful the sound signal on this aid is when navigating in reduced visibility:

___a. I do not pay any attention to the sound signal.
___b. The sound signal is heard infrequently and is not used for navigation.
___c. The sound signal provides a welcome, but unnecessary, confirmation of the vessel's position.
___d. In reduced visibility, the sound signal plays an integral role in safe navigation.
___e. Safe navigation in reduced visibility depends on the sound signal to determine the location of an aid, shoal water, or to indicate when a manuever is required. In the absence of the sound signal, the mariner would not attempt to transit the waterways in the vicinity of this aid.
___f. Other (please explain)_____

Are the additional sources of information from the aid adequate (as applicable)? If not, please explain how they could be improved in the blank which follows.

(Y / N) Racons _____
(Y / N) Radiobeacons _____
(Y / N) Direction Lights _____
(Y / N) Sector Lights _____
(Y / N) Other _____

Sample #4

POSSIBLE QUESTIONS

1. NAME DATE

MARITIME ORGANIZATION PHONE NUMBER

2. YOU ARE WHAT TYPE OF USER:

PLEASURE COMMERCIAL LICENSED UNLICENSED

3. YOUR TOTAL YEARS MARITIME EXPERIENCE?
TOTAL YEARS EXPERIENCE IN THIS AREA?

4. VESSEL DESCRIPTION:

MOTOR BOAT SAIL BOAT FERRY FISHING TUG/BARGE DEEP DRAFT

DIMENSIONS OF THE VESSELS YOU USE:

VESSEL #	1	2	3
LENGTH			
BEAM			
DRAFT			
GROSS TONS			
NET TONS			
HEIGHT OF EYE			
TYPE OF CARGO			
NUMBER OF PASSENGERS			

5. WHAT WATERWAYS DO YOU USE?

XXXXX BAY XXXXX CHANNEL XXXXX HARBOR
(LIST ALL WATERWAYS IN THE WAMS)

5. WHEN DO YOU TRANSIT THESE WATERWAYS?

SEASONALLY YEAR ROUND DAY NIGHT RESTRICTED VISIBILITY

6. WHAT METHODS AND TOOLS DO YOU USE FOR NAVIGATION IN THESE WATERWAYS? CHARTS CHARTLETS GYRO COMPASS MAGNETIC COMPASS RADAR RADIO DIRECTION FINDER RADIO BEACONS LORAN SATNAV GPS SEARCHLIGHTS FATHOMETER LOCAL KNOWLEDGE

7. PLEASE DESCRIBE YOUR NORMAL TRANSIT ROUTES AND TRANSIT SPEEDS IN THESE WATERWAYS. IF A CHARTLET IS INCLUDED IN THE PROPOSAL; PLEASE DRAW TRACKLINES ON THE CHARTLET.

8. DO YOU AGREE WITH THE ATTACHED PROPOSED CHANGES? PLEASE ADDRESS EACH PROPOSED AID CHANGE INDIVIDUALLY.

Sample #4, continued

9. IF THE PROPOSAL DOES NOT REMEDY THE FOLLOWING PROBLEMS, PLEASE EXPLAIN AND MAKE A RECOMMENDATION:

NUMBER OF AIDS
TYPE OF AIDS
NUMBER OF LIGHTED AIDS
RANGES OF LIGHTED AIDS
AID'S VISUAL SIZE?
AID'S RADAR REFLECTION?
AID POSITIONS?
SHOAL AREAS?
NAVIGATIONAL HAZARDS?
OTHER PROBLEMS?

10. DO YOU RECEIVE THE LOCAL NOTICE TO MARINERS?
IF YOU DON'T BUT WOULD LIKE TO, PLEASE CALL (XXX)XXX-YYYY.

of Transportation
United States
Coast Guard
COMMANDER (oan)
8th Coast Guard District
Hale Boggs Fed. Bldg.,
501 Magazine Street
New Orleans, LA 70130-3396
Official Business
Penalty for Private Use $300

I II II I

U.S. MAIL

Postage and Fees Paid
United States
Coast Guard
DOT 514

COMMANDER (oan)
8th Coast Guard District
Hale Boggs Fed. Bldg.,
501 Magazine Street
New Orleans, LA 70130-3396

ATTN:

FOLD HERE..... FOLD HERE

LOWER MISSISSIPPI RIVER WATERWAY ANALYSIS AND MANAGEMENT STUDY (WAMS)

As part of it's ongoing Waterways Analysis and Management Program, the Eighth Coast Guard District is conducting an in depth study of the system of aids to navigation in the lower Mississippi River, from **New Orleans to the Gulf Of Mexico** (via Southwest Pass). This study is intended to ensure that the aids to navigation system supports safe navigation and the efficient flow of commerce.

A critical aspect of this study is the consideration of the needs and observations of the waterways users. Anyone having input concerning desired changes or problems within this system is encouraged to complete and return the attached questionnaire. No postage is necessary, simply fold it on the dotted lines, with the address out, and tape or staple the top edge.

FOLD HERE..... FOLD HERE

NEW ORLEANS – GULF OF MEXICO WAMS QUESTIONNAIRE

USER INFORMATION:

NATURE OF MARITIME AFFILIATION (i.e. Towing Company, Pilots Association, Fisherman, Pleasure Boater):

_____

NAME, ADDRESS & PHONE NUMBER: _____

_____

_____

_____

FOR FUTURE AIDS TO NAVIGATION ISSUES, WHAT TRADE PUBLICATIONS WOULD BEST REACH YOU & YOUR PEERS? _____

_____

VESSEL OPERATED:

TYPE:_____ TONNAGE:_____ HORSEPOWER:_____

LENGTH:_____ BEAM:_____ DRAFT:_____

OPERATORS HEIGHT OF EYE ABOVE THE WATER:_____

NAVIGATION EQUIPMENT ON BOARD:_____

_____

TRANSIT INFORMATION:

HOW OFTEN DO YOU TRAVEL THE WATERWAY?_____

_____

WHAT PERCENTAGE OF THOSE TRIPS ARE AT NIGHT OR REDUCED VISIBILITY?_

WHAT KIND OF CARGO, IF ANY, DO YOU CARRY?_____

_____

WHAT IS THE DEEPEST DRAFT YOU TRANSIT WITH?_____

WHAT SPEED DO YOU TYPICALLY TRANSIT AT?_____

ARE YOUR TRANSITS LIMITED TO ONE PORTION OF THE WATERWAY? IF SO DESCRIBE YOUR ROUTE._____

_____

COMMENTS:

This is your opportunity to note problems you see with this waterway and present any suggestions you may have for improving it. Please attach sketches or any additional information necessary to make your points clear.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Section 4 – Data Collection

Intro

Armed with your initial information, you are now ready to start collecting the data you'll need for your WAMS report.

In this Section

This section is divided into seventeen steps.

Step	Title
1	Collect Geographic Information
2	Collect Bridge Information
3	Collect Facilities Information
4	Review 33 CFR Part 334
5	Review Ice Condition
6	Review Traffic Patterns
7	Review "Distance from toe" need
8	Review Aid Discrepancies and Look for Trends
9	Review Environmental Factor
10	Review Pending Projects for Adjoining Areas
11	Review Pending Projects for WAMS Area
12	Review Coast Pilot and Initiate Change
13	Review Private AtoN
14	Review Luminous Range
15	Review AC & I Project Schedule
16	Review Channel Surveys
17	Verify Existing Aid Information

Collect Geographic Information

Reference Enclosure 5, AtoN Administration Manual

Process Collect the following information about the geographic characteristics of the waterway:

- channel dimensions: length, width, depth ,
- bottom types,
- shoreside topography,
- anchorage areas,
- special purpose areas,
- any other pertinent information about the areas geography.

Collect Bridge Information

Reference

- Enclosure 5 and Pg 4-21, AtoN Administration Manual
- Bridge Administration Manual, COMDTINST M1659C.5A

Process

Collect the following information about the bridges in the waterway:

- miles above the mouth,
- owner,
- use: foot, vehicle, train, etc.,
- clearances: vertical and horizontal (above MHW),
- operating regulations (if drawbridge),
- type: fixed, lift, swing, bascule,
- bridge markings (i.e. navigation lights, clearance gauges, reflectors),
- waterway traffic concerns (i.e. location of navigational span, tides & current effects, etc.),
- casualty information,
- any other pertinent information,
- fender system: condition, if one exists, and
- general visual appearance.

Info Source

District (oan)'s bridge administration program personnel are the single best source of information on bridges in the waterway.

Collect Facilities Information

Reference Enclosure 5, AtoN Administration Manual

Process Collect the following information about the facilities in the waterway:

- types of facilities: refineries, marinas, etc.
- number of facilities,
- available docks,
- waterway access to facility,
- types of shipping which use the facility,
- facility products,
- special hazards: spills, discharge/intake pipes, submerged obstructions, noise, etc.
- any other pertinent information about the facility.

Review Code of Federal Regulations, Title 33, Part 334

Intro

33CFR334 defines danger zones and restricted areas in US and territorial waters and provides regulations for the use of these waterways.

What to Review

♦ Review 33CFR334 for all danger zones and restricted areas in your waterway.

♦ Ensure that the regulations are accurately reflected on the chart and in the other common waterway references (i.e. Coast Pilot).

♦ When completing your user interviews, determine if the regulations in 33CFR334 are both applicable and being followed. Comment in your WAMS as appropriate.

Review Ice Condition

Procedure The following procedure explains the method for conducting a WAMS review of the waterway's ice conditions.

Step	Action
1	Review Seasonal Buoys & Lighted Structures section of District SOP to review definitions and determine how ice conditions affect AtoN.
2	Review Light List, Aid Assignment list, and ATONIS to verify existing ice condition.
3	Make appropriate recommendations for changes based upon thorough research, user input, primary servicing unit input, knowledge of AOR and available resources.

Note For Fifth District: Seasonal Buoys & Lighted Structures section can be found in Tab C to Appendix 35 to Annex C to CCGD5 SOP (General Instructions and Administration).

Review Traffic Patterns

Intro

The traffic patterns, or the ways mariners currently transit the waterway, will significantly affect the best aid configuration for the waterway.

Reference

Aids to Navigation Manual - Administration (COMDTINST M16500.7) - Chapter 4.

Discussion

You may be surprised to find that mariners, as a convention, do not use the aids as they are intended.

For instance, local fisherman may take a red nun down their port side when travelling in the Conventional Direction of Buoyage because it is a quicker route to their destination. This may indicate a need to reevaluate the color of the aid or consider establishing a secondary channel.

Determine Traffic Pattern

Determine the way that the mariners generally traverse the waterways.

- Ask the mariners, either through the surveys or through public meetings.
- Include chartlets in the surveys, and ask the mariners to indicate the tracklines they use.
- Once you have a good idea of these traffic patterns, draw them onto a chart using prominent tracklines and arrows. You may want to use different colors to denote different user groups.
- Look at this chart to determine if the buoys are being used as prescribed by IALA standards. Also, consider whether mariners use any secondary channels which should be marked as such.

Review "Distance from toe" need

Defined

Channel Toe - The intersection of the bottom width of the channel with the bottom of the side slope. The toe should be the same as the dotted channel lines on ACOE surveys and on NOS charts marking the edge of the channel.

Channel Shoulder - The intersection of the top end of the slope and the normal bottom contour outside the channel.

Channel Slope - The sloped area between the channel shoulder and the toe of the channel.

Procedure

The following procedure explains the method for confirming the "distance from toe" need while conducting a WAMS.

Step	Action
1	Review Light List channel limits.
2	Review appropriate Army Corps bottom survey.
3	Obtain user input for further evaluation.
4	Evaluate current assigned position and input. Make appropriate recommendations in WAMS.

Note

User input from deep draft vessels, pilots association, and tug and barge operators is critical in this analysis.

Units shall ensure that they receive Corps Survey maps from their respective Corps District to determine present aid positions (on channel toe or a specific distance away from the toe as indicated in the light list) and positions for new aids. Conversion of Corps survey state plane coordinates to latitude/longitude may be accomplished with ACOE program "Corpscon" from (oan) or your local ACOE District.

Review Aid Discrepancies and Look for Trends

Intro

Look at the aid discrepancy history for your waterway to see if there are any possible trends. Trends in aid discrepancies can indicate a need for a change.

Note

The following process will allow you to search discrepancies in ATONIS. However, do not confine your search solely to the ATONIS database. Remember to use all available sources.

ATONIS Search

You must install two files beforehand. To do this, Obtain the files from (oan), and place disclist.p in the ATONIS directory and store macro disclist in your Document Designer directory.

Procedure

The following procedure explains the method for obtaining aid discrepancy information using ATONIS 2.

Step	Action
1	From the ATONIS main menu, select the user function and type "disclist.p" in the field.
2	Enter the waterway number that you wish to generate the list for.
3	Go to DocDesigner and recall macro "disclist".
4	Print or review the generated file called disclist.rpt

Keep In Mind!:

When reviewing aid discrepancies:

- Frequent reports of aid off-station may mean dragging from current, ice, or numerous vessel collisions.
- Frequent reports of aid extinguished may indicate vandalism, intense icing, numerous vessel collisions, or a need to change the solar package.

Review Environmental Factors

Reference Aids to Navigation Admin Manual (COMDTINST M16500.7)

Intro The waterway's environmental aspects are another one of the puzzle pieces you'll need to research and understand in order to complete your WAMS report.

Guidance At a minimum, determine the following environmental factors or if completing a WAMS review, ensure that the information is still correct.

- tides,
- currents,
- wind,
- fog,
- expected temperatures during given seasons,
- storm frequencies,
- average sea state,
- transmissivity values (80% & 90%),
- environmentally sensitive areas, and
- threatened/endangered species.

Review Pending Projects for Adjoining Areas

Introduction Your WAMS review may require you to look at waterways which may extend into areas covered by separate WAMS studies and projects. If so, it is important to examine the effects any AtcN changes in a waterway may have on surrounding areas.

Action The following actions should be taken when reviewing adjoining waterways:

Step	Action
1	Review WAMS for adjoining waterways if these documents exist.
2	Contact (oan) to determine what projects are pending for adjoining waterways.
3	Use acquired information to avoid conflict with recommendations for your WAMS report.

Example For example: You are completing a WAMS for portions of Chesapeake Bay and want to recommend renumbering aids in the vicinity of the Potomac River.

Upon review of the WAMS for the Potomac River, you find that a project is pending to remove several aids that will impact your recommended numbering system.

Questions If you have any questions regarding the status of pending WAMS or pending projects, contact (oan).

Review Pending Projects for WAMS Area

Intro

An important part of the WAMS review process is determining the status of the AtoN changes which were recommended by the original WAMS study.

Discussion

Each WAMS study or review results in a list of recommended AtoN changes to improve the waterway. Frequently, these changes are postponed due to a lack of funding. This means the review is a great opportunity to reevaluate the proposed changes to determine whether the recommendations are still valid.

What to do

- Ask the District (oan) for the status of projects originally proposed for the WAMS area.
- If proposed changes exist that have not been completed, recommend that these projects be held in abeyance until the WAMS review of the area is complete.
- If there are changes which were accomplished, be sure to ask the mariners if these changes have improved navigation on the waterway.
- Base your final recommendations on your review; do not be unduly biased by the previous WAMS. The original recommendations may have not resulted in the best possible AtoN system, or else the navigational situation on the waterway may have changed.

Review Coast Pilot and Initiate Change

Guidance

Review Coast Pilot:

♦ Does the waterway description need to be changed, updated, deleted?

♦ Note changes in commerce, vessel traffic, VTS coverage, phone number changes, Coast Guard changes, AtoN changes, etc.

♦ Does Coast Pilot adequately reflect the waterway? If not, change it!

Example

♦ Mail recommended changes to NOAA address listed in the beginning of the Coast Pilot.

♦ Your changes should be in the following format:

1) 1994 Coast Pilot 7, Pacific Coast: OR, WA, CA, Edition 29.

2) Page 58-Paragraph 991; Read:

The opening of the harbor is marked by....

3) Page 70-Paragraph 1200; Read:

During April, excessive runoff may cause...

List other changes as required.

Review Private Aids to Navigation (PATON)

Reference

Chapter 5, Aids to Navigation Admin Manual (COMDTINST M16500.7)

Guidance

Review PATON on waterway:

- Are any PATON discrepant (poor condition, light out, missing)?
- Should any PATON be charted, relocated, removed, or added?
- Are there Federal AtoN that should become PATON and vice versa?
- Are the PATON being inspected as required?
- Are all PATON properly permitted? (check with oan if in doubt)?

Review Luminous Range

Reference Luminous Intensities of AtoN (COMDTINST M16510.?)

Definition Luminous Range is the maximum distance a light can be seen 80% or 90% of the nights per year, taking into account the effective luminous intensity of the light, the atmospheric transmissivity and the threshold of illuminance.

Allard's Law Allard's equation or a graphical version called Allard's Nomogram are used to calculate luminous range.

Guidelines The following information must be collected prior to calculating luminous range:

- Luminous intensity: the power of energy from a light which is capable of producing a visual effect on the human eye. Takes into account lantern, lamp size, and light color. Determined from Luminous Intensities of AtoN (COMDTINST M16510.2).
- Transmissivity: the measure of the clarity of the atmosphere. This data is found in Commandant Distribution 3915: Atmospheric Transmissivity Update-1988. Use 80% value for minor aids and 90% value for major aids.
- Threshold of Illuminance: The minimum flow of energy required to detect the emitting light source against a given background lighting. Use the following intensities:

0.67 sea-mile candela for no background lighting
6.7 sea-mile candela for minor background lighting
67 sea-mile candela for considerable background lighting

Note Nominal range is the luminous range of a light calculated with a transmissivity of .74 (visibility of 10 nautical miles), and a threshold of illuminance of .67 sea-mile candela. As a result, nominal range is usually greater than the luminous range.

Process For a thorough discussion on calculating nominal range and luminous range see NATON School handout "AtoN Signals Study Guide." A computer program to perform these calculations is available from COMDT (G-SEV).

Review AC&I Project Schedule

Procedure The following procedure explains the method for conducting a WAMS review of the AC&I Project Schedule.

Step	Action
1	Obtain copies of current CG 3739, Waterways AtoN Project Schedule.
2	Describe current status of all projects related to the waterway(s) being studied and describe where each fits into your analysis.
3	Make related recommendations as necessary and appropriate.

Note District (oan) is responsible for submitting Waterways AtoN Project Schedule, CG 3739, to (G-OPN) in August and February. For more information on CG 3739, see COMDTINST M16500.7, AtoN Manual-Administration, chapter 2.

Note Include a copy of CG 3739 with your WAMS report.

Review Channel Surveys

Procedure The following procedure explains the method for conducting a WAMS review of channel surveys.

Step	Action
1	Determine when last NOAA hydrographic survey was conducted and method used.
2	If NOAA survey is outdated or inaccurate, recommend a new survey be conducted.
3	Review existing inventory of ACOE channel "condition" surveys.
4	Obtain updated or missing surveys as needed. Document any unresolved discrepancies.
5	Compare positions of AtoN depicted on ACOE survey map with actual or desired positions.
6	If AtoN positions do not correspond, make appropriate recommendations to correct.

Note Close liaison with the Planning Branch of the Army Corps of Engineers District which services the unit's waterways is vital to the WAMS process.

Units shall ensure that they receive Corps survey maps from their respective Corps District to determine present aid positions (on channel toe or a specific distance away from the toe as indicated in the Light List) and positions for new aids.

Conversion of corps survey state plane coordinates to latitude/longitude may be accomplished with ACOE program "Corpscon" from (oan) or your local ACOE District.

Verify Existing Aid Information

Intro

Verification of existing aid information, characteristics, and requirements is necessary for ensuring the accuracy and effectiveness of the aids and your WAMS report.

Process

The following steps will aid you in ensuring all appropriate aid information is reviewed.

Step	Action
1	Review luminous intensities.
2	Review/plot arc of visibility of lights.
3	Run MOORSEL program.
4	Review aid's equipment outfit.
5	Review solar sizing. Run Solarcalc as needed.
6	Review aid's Light List, ATONIS, and Aid Folder information.

Section 5 – User Input and Interaction

Intro

The input that you get from your various waterway users is the most important information in the WAMS report. Therefore, proper data gathering methods are critical if you wish to acquire all the necessary information.

In this Section

This section is divided into eleven steps.

Step	Title
1	Identify Special Political Concerns
2	Talk Face to Face with the Users
3	Conduct Public Meetings
4	Distribute Questionnaires
5	Take User Rides
6	Dealing with Other Federal Agencies
7	Contact the Marine Safety Office
8	Contact the Vessel Traffic System
9	Contact Other Coast Guard Units
10	Contact ACOE and Port Authorities
11	Contact Facility Managers

Identify Special Political Concerns

Intro

Although a thorough analysis of a WAMS report may result in a WAMS which recommends the addition or deletion of numerous aids, often there are overriding political concerns which may not be readily apparent during the WAMS process. These political concerns generally will have a significant impact on the waterway and must be addressed by the WAMS process.

Info Sources

The best sources to contact for information concerning political interest in the waterway are:

- the district (oan) and
- other local major Coast Guard commands (MSOs, groups, etc.).

Who Else?

Depending on your oparea, you and your AtoN efforts may receive attention from local, state, or national governments in response to concerns by their constituents (mariners, pilots, and user groups).

Always involve the local government and their constituents in your process to address their concerns, answer their questions, and educate them on your intent and efforts.

Finally

The Coast Guard's AtoN is designed to serve the user. Therefore, the WAMS author needs to balance the actual and perceived needs of all the users with the scientific results obtain through other parts of the analysis. An early awareness of the political concerns for the waterway can assist you in obtaining a thorough and accurate WAMS report which takes into account these concerns.

Talk Face to Face with the Users

Intro

Mariners, like anyone else, may find it difficult to express their needs and concerns through the use of a survey. A thorough review and evaluation of a waterway requires extensive personal interaction with the users of that waterway or their representatives.

Good Ideas

Here are some things to keep in mind when meeting, talking, and working with users to gain insight into how the waterway can be improved:

- Phone conversations can be valuable when a meeting cannot be arranged. You may want to call a user group to discuss more intensively the answers on their survey.
- The best opportunity to talk face to face with mariners is on a user ride. Here, you and the user can easily discuss the successes and shortcomings of the AtoN system as you see exactly how the aids are used to navigate the waterway. Be sure to bring an extra chartlet along, and a clipboard, to capture the transit for future reference.
- Prepare a list of specific questions for the user, including navigational draft, difficulties with oncoming traffic, safe distance from hazards, type of vessel, height of eye, etc.
- Always take extensive notes when meeting with a user. You may find it valuable to use a pocket tape recorder to record conversations.

Conduct Public Meetings

Intro

Public meetings may be a valuable forum for gathering information directly from the users, especially if the issues or proposals surrounding a waterway review are controversial in nature.

Keep In Mind!:

When arranging a public meeting:

- Use your mailing list to distribute invitations. Ensure all interested parties are invited. Do not leave anyone out.
- Invite everyone early enough in advance so they can prepare for the discussion.
- Create an agenda prior to the meeting. Include opportunities for various organizations to bring up individual concerns, as well as a Q&A period.
- Inform area media, including newspapers and local TV stations. Contact the marine columnists of coastal community publications.
- Consult the District Public Affairs office with any questions you may have about arranging or conducting a public meeting.
- Make a list of the names, phone numbers, and affiliations of all who attend. Ensure accurate minutes are taken from the meeting, and distribute these to all who were present.
- Prepare a chart detailing any pending AtoN proposals; post the chart for attendees to inspect prior to the beginning of the meeting or make chartlet copies to hand out.
- Consider serving light refreshments such as coffee, soda, donuts, or cookies.

Distribute Questionnaires

Intro

The questionnaire should be distributed to all individuals, agencies, and organizations that may be able to provide useful input regarding the waterway. Successful information gathering exhausts every possible resource. Be creative and persistent.

Keep In Mind!:

When distributing questionnaires:

- Historically, approximately 22% of all surveys are returned. Often, those that are returned are incomplete.
- Decide on a date by which all questionnaires must be returned. Ensure this due date is printed plainly on the questionnaire. Remember, if a due date is too soon after distribution, users may decide the survey is unimportant and discard it; if a due date is much later than the due date, users may lose the survey before they have a chance to complete it. Generally, three weeks from your mailing date is an appropriate amount of time.
- If you have created numerous questionnaires tailored to different users, ensure each user receives the appropriate questionnaire.
- Keep extra copies of the questionnaire on hand and give one to every user who visits the unit. Hand them out at public meetings and Coast Guard open houses. Give questionnaires to representatives when you take user rides or conduct interviews.
- Coordinate with area CG units; have small boat stations distribute copies of the questionnaire when they conduct courtesy boardings or inspections.
- For questionnaires distributed by mail, ensure the following information is included: your name, the unit's name, address, phone number, and also provide your fax number so users can fax the completed survey right to you if they desire.
- Distribute copies of the questionnaire to the general public at boat shows in your area. Check with the area Auxiliarists; they may be manning CG Information/Boating Safety booths at upcoming events.

continued on next page

Keep In Mind!: (cont.)

- Make arrangements with the owners/managers of local marinas, boat dealers, and boat yards. Provide them a stack of surveys to be filled out by their customers, and, at a later date, return to pick up the completed surveys.

Important Note

The Office of Managmenet, and Budget (OMB) has issued regulations and requirements for surveying the public. Work closely with (oan) during the WAMS process to ensure that your efforts are in accordance with the applicable regulations.

Take User Rides

Introduction One of the best ways to evaluate the usefulness of AtoN in a waterway is to walk in the customers shoes by taking user rides. Not only will you see the waterway as the vessel operator sees it, but you will also get valuable feedback and possible suggestions.

General The number of user rides necessary for proper evaluation greatly varies between waterways. The following is a brief list of suggested user types:

- The largest vessel transiting the waterway.
- The vessels transiting with the greatest frequency.
- Government vessels (i.e.. Harbor Police, Navy, CG).
- Pilots, Tugs, Ferries, and Commercial Fishing boats.
- Yacht Clubs, CG Auxiliary, Power Squadrons, etc.

This list is definitely not all-inclusive. An often overlooked resource is the local CG "white-hull" which may be homeported or make port calls in the waterway.

Format The format for a User Ride Write-up can also vary by waterway. The write-up can be as general as a visual description of the waterway from start to finish, or as specific as comments on particular buoys, lights, ranges, or turns.

Regardless of the chosen format, ensure that the comments and evaluations are accurately recorded and then consolidated into the final evaluation of the waterway.

Note When taking user rides, you are putting the waterway user to work for you. Be certain to be courteous, write thank-you letters, and provide follow-up information on how the users' input has been used, as well as answer any questions they may have. See - Feedback to Users

Dealing With Other Federal Agencies

Introduction

Often, other federal agencies have an interest in the management of a waterway, as well as any changes that may take place. It is not only important to get their input on the AtoN in the waterway, but to find out about any projects, interests, or concerns that they may have in the area.

General

♦ Some of the Federal Agencies which may have interest in the WAMS process include:

- ♦ U.S. Navy.
- ♦ NOAA.
- ♦ U.S. Army Corps of Engineers.
- ♦ EPA, Mineral Management Service, U.S. Fish and Wildlife
- ♦ Non-federal agencies include - State, County, and City environmental, law-enforcement, and commerce agencies

♦ Correspondence with Federal Agencies generally requires command level approval. It is beneficial to establish regular liaison with each agency to keep informed of their actions and to get their input.

♦ In addition, some projects require compliance with Federal laws. These agencies can act as information centers to ensure requirements are met, and provide legal assistance.

♦ Various Federal Agencies also produce reports about their areas of concern which are highly valuable to the WAMS process.

Note

Different Federal Agencies exercise jurisdiction in different areas and for different reasons. For example, the Navy may not operate vessels in the area of an offshore island, but due to bombing operations, have security jurisdiction and an interest in the area. It is therefore prudent to communicate with other agencies whenever they may have an interest in the waterway.

It is better to have an agency respond that they have no comment about a waterway, than to have them raising concerns about a project already underway.

Contact the Marine Safety Office

Intro

Marine Safety Offices and Marine Safety Detachments are excellent resources to contact when conducting your WAMS. On a daily basis, they interact with commercial vessels, waterfront facilities, local government officials, etc., and they can provide you with local knowledge in these areas.

MSO's Areas of Expertise

The following is a list of topics that M units can provide to assist in your WAMS report.

- Casualty Data for Commercial Vessels
- Regulated Navigation Areas (RNAs) and Limited Access Areas 33 CFR 165
- Vessel Traffic Services (VTSs) 33 CFR 161
- Inland Waterways Navigation Regulations 33 CFR 162
- Offshore Traffic Separation Schemes 33 CFR 167
- Special Anchorage Areas 33 CFR 110 Subpart A
- Anchorage Grounds 33 CFR 110 Subpart B
- Environmentally Sensitive Areas
- Bridge Lighting & Operation, 33 CFR Subchapter J

What to Request

For Casualty Data for Commercial Vessels:

- Contact the MSO's/MSD's Inspection Department and request MSIS (Marine Safety Information System) printouts for the specific waterways that are included in your WAMS. Also, state that you want the narrative supplement or any statements from the CG investigating officer.

For Regulated Navigation Areas (RNAs) and Limited Access Areas, Vessel Traffic Services (VTSs), Inland Waterways Navigation Regulations, Offshore Traffic Separation Schemes, Special Anchorage Areas and Anchorage Grounds:

- Request the MSO's/MSD's Port Operations Department review any of the above areas in their AOR for accuracy, applicability, etc.

  In addition, personally check this data in CFR Title 33 "Navigation and Navigable Waters", and the Coast Pilot - Chapter 2, Navigation Regulations and the applicable chart(s).

continued on next page

For Environmentally Sensitive Areas:

- Contact the Port Operations Department's Marine Environmental Protection Division to acquire their assessment of any sensitive areas.

What to Look For

For Casualty Data for Commercial Vessels:

- Try to identify the location and cause of each casualty. This may highlight deficiencies in the aid system that otherwise might go unnoticed.

For Regulated Navigation Areas (RNAs) and Limited Access Areas, Vessel Traffic Services (VTSs), Inland Waterways Navigation Regulations, Offshore Traffic Separation Schemes, Special Anchorage Areas and Anchorage Grounds:

- Review info received from the MSO/MSD and ascertain whether these areas need to be deleted from the chart and/or Coast Pilot because they are unneeded. If they're unneeded, chances are any aids marking the area could be disestablished.

For Environmentally Sensitive Areas

- Review info received from MSO/MSD and ascertain whether these areas need to be marked better than the present AtoN system to ensure protection of the marine environment.

Contact the Vessel Traffic System

Intro

If there is a Vessel Traffic System (VTS) within the waterway, the VTS should be consulted for information. On a daily basis, they interact with commercial vessels, waterfront facilities, local government officials, etc., and they can provide you with local knowledge in these areas.

VTS's Areas of Expertise

The following is a list of topics that a VTS can provide to assist in your WAMS report.

- Regulated Navigation Areas (RNAs) and Limited Access Areas 33 CFR 165
- Vessel Traffic Services (VTSs) Regulations 33 CFR 161
- Inland Waterways Navigation Regulations 33 CFR 162
- Offshore Traffic Separation Schemes 33 CFR 167
- Special Anchorage Areas 33 CFR 110 Subpart A
- Anchorage Grounds 33 CFR 110 Subpart B
- Local vessel types and transit frequencies
- Local vessel traffic regulations
- Local Knowledge

VTS's Are Users Too

In addition to being an information resource for the waterway, the VTS is also a user. As such you should solicit feedback on the adequacy of the waterway and its AtoN.

Contact Other Coast Guard Units

Intro

Coast Guard Groups, Stations, ANTs, Auxiliary Flotillas, and floating units within your waterway will usually have a wealth of information that will assist you in your WAMS process.

Note

Coast Guard units in your waterway should be considered as both a user group and as an additional source of information.

What to Ask

♦ Ask the same questions and/or forward the same survey to the Coast Guard units in the waterway that you would provide to any other user group.

♦ In addition, request that the Coast Guard units provide you other information that they would normally have, such as:

- ♦ casualty information,
- ♦ user demographics,
- ♦ discrepancy information, and
- ♦ local knowledge.

One More Source

If available, Coast Guard men and women previously stationed in the area can be another useful source of that you should consult for information on your waterway.

Contact ACOE and Port Authorities

Intro

Army Corps of Engineers (ACOE) and Port Authority projects information provides detailed information of different waterways throughout the USA.

This information includes previous and future plans for the waterway concerning dredging and includes drawings and aerial photographs of the waterways.

General

The following general notes apply to ACOE and Port Authority information in the WAMS study:

- Contact the local ACOE offices and ask for any information about the waterways in your AOR that they might have information on including scheduled dredging projects and a copy of the General Design Memorandum.
- Include in your project any diagrams or photographs of the waterways provided by the ACOE.
- Some districts have Port Authorities that are conducting projects in some of their areas and they should be contacted for information.

General Design Memo

The General Design Memorandum (GDM) is the ACOE's dredging projects planning document. This document is important for the WAMS author because it provides the design vessel which should be used for running the ARRF program. Additionally, it contains information on cargoes, an economic analysis of the waterway, and other supporting information that could impact a navigation project.

Note

Remember, when you talk with the local MSO's to discuss casualty information/plans. They have "close ties" with industry and can often provide further information about the ACOE and industry's plans --Re: dredging, future plans, etc.

Contact Facility Managers

Intro

Facility managers are an often neglected source of information about your waterway. Normally, the facility managers are privy to a great deal of information about the waterways because of their continuous interaction with the traffic moving in and out of their facility via the waterways.

What is a Facility

Facilities are any of the industries or businesses located on a waterway. Some examples include:

- Refineries
- Docks and piers
- Marinas
- Fish processing plants

What to Ask

The following are some common questions to consider asking facility managers.

- What type of waterway traffic uses your facility (vessel type and size, frequency)?
- What type of product does your facility produce?
- Are your products hazardous?
- Do your waterway carriers have any difficulty transiting the waterway?
- Does your facility pose a hazard to waterway users operating in the area (i.e. discharge/intake pipes, fumes, submerged obstructions, etc.)
- Is the waterway adequate for your facilities needs? Please elaborate on any inadequacies.
- Do you have any comments or suggestions regarding the waterway or the AtoN?

Note

Keep in mind during your conversation that the facility managers may have only a limited knowledge of the waterway. Therefore, ask general questions at first and specific questions only if appropriate.

Section 6 – Data Analysis

Intro

Data analysis can be a long and tedious process if started without a systematic plan in mind.

Note

The following section lists the steps in data analysis in a recommended order to follow. However, depending on your needs and the waterway, you may find it easier to conduct the steps in a different order.

In this Section

This section is divided into thirteen steps.

Step	Title
1	Analyze Minor Aids
2	Analyze Major Aids
3	Evaluate Charts
4	Complete and Review Chart Work
5	Evaluate Existing Ranges
6	Evaluate Servicing Units
7	Evaluate Radio and Satellite AtoN
8	Evaluate Positioning Control
9	Obtain/Plot Casualty Data and Look at Trends
10	Run ARRF Program
11	Run MOORSEL
12	Run SOLARCALC
13	Run Range Design Program

Analyze Minor Aids

Intro

Minor Aids are a major portion of every WAMS. Each Minor Aid should be analyzed individually as well as part of the bigger picture. Minor Aids include buoys, ranges, and beacons.

General

The following aspects of each aid should be addressed:

- Size of buoy hull/radar nominal range of the buoy.
- Name and number of buoy.
- If lighted:
  a. flash characteristic
  b. size and number of battery(s)
  c. size and number of solar panels
- Review the luminous intensity of the aid and ensure it's appropriate for the aid's required visual range and the effects of background lighting. Background lighting's impact on Ranges can be substantial.
- Detailed description of geographical location of buoy (not latitude and longitude).
- Anything unique to that aid.
- Any changes and reasons for those changes that were recommended in the Action Summary for the aid.
- Size of dayboards and nominal range impact.

Sources

The following resources can be used to acquire data on Minor Aids to navigation:

SOURCE	INFORMATION
1. Aid Sheets	In depth information on specific aid.
2. AtoN Manual, Technical COMDTINST M16500.3A)	Sizes of buoys ...etc.
3. Short Range Aids to Navigation System Design (CG-D-18-85)	Designs of Restricted w/w.
4. Luminous Intensities (COMDTINST M16510.2)	Requirements and guidelines for intensity of buoy optics.
4. NATON Handout "AtoN Signals"	Guidelines for determining intensity of buoy optics.

continued on next page

Example

Black Rock Canal LB 03 (LLNR 2795): Buoy 3 marks the north cutoff point of this first turn region into the Black Rock Canal. It shows a FL G 4s characteristic having a 10 W solar panel and (1) 100 AH battery. The aid hull is a 5x11LCR and is wintermarked by a 5CI. The M/V RICHARD REISS grounded during strong winds in the vicinity of this aid in 1992. The incident report indicated that the buoy was on station but not marking best water. A review of the latest ACOE bottom surveys indicates that there is some minor shoaling into the maintained channel on each side of the buoy. It is recommended that ANT Buffalo ensure that this aid is marking best water when placed on station during the spring of 1995. Change the characteristic of this aid to a FL G 2.5s as discussed in paragraph (A). It's aid availability rate is 99.8% based on three years of service.

Action

If the aid availability is insufficient, determine what efforts are needed to raise the availability to Coast Guard standards.

Analyze Major Aids

Procedure The following procedure explains the method for conducting a WAMS analysis of Major Aids.

Step	Action
1	Review related user input for major aids.
2	Describe each aid's characteristic, function, historical significance, and physical state.
3	Evaluate operational requirements for all signals on each major aid in the waterway.
4	Conduct a material inspection of each major light in the waterway.

Note District (oan) is responsible for initiating actions required to restore lights to a suitable operational condition.

These actions include obtaining CEU assistance, and scheduling maintenance projects.

The primary servicing unit is responsible for initiating SSMRs and CASREPs.

Determine Operational Requirement for Major Seacoast Lights

Introduction The following procedures describe the method for determining operational requirements for seacoast major lights.

Definition Seacoast major lights assist vessels during coastal navigation or when making landfall.

Known Standards When existing major aids are used as a coastal navigation aid, a mariner should be able to see at least one aid 90% of the time from any position in the waterway.

When major aids are used as landfall lights, the light shall be intense enough to be seen 90% of the time, based on local visibility, throughout the required area.

Determining Standards* Use the following procedure for situations in which operational range has not yet been determined.

Step	Action
1	Determine geographic range (G) of light assuming mariner height of eye = 15' G (NM) = 4.53NM + 1.17 * (Height of light)$^{\frac{1}{2}}$NM
2	Provide light with luminous range equivalent to geographic range.**

***Note** The calculated operational range is not intended to require modifications to existing systems, but is to be used as a benchmark for future modifications.

****Note** See **AtoN Signals Guide** and the **Luminous Intensities Manual** for complete instructions for determining visibility of aids. A computer assisted calculation method is available from COMDT (G-SEV).

Determine Operational Requirement for Inland Major Lights

Introduction

The following procedures describe the method for determining operational requirements for inland major lights.

Definition

Inland major lights are found in bays, sounds, and coastal approaches.

Use

Inland major lights are used as:

- leading lights,
- obstruction marks,
- sector lights, and
- visual and radar reference marks.

Determining Standards

Inland major lights must have sufficient intensity to ensure they are visible over their usable range 90% of the nights of the year. Use the same criteria to determine optic selection as for major seacoast lights.

Conduct Material Inspection of Major Light

Purpose

An inspection of the light should be conducted to ascertain the state of installed equipment, the condition of the structure and surrounding property, and identify hazards at the light.

Conducting Inspections

Inspections shall be conducted IAW the **Lighthouse Maintenance Management Manual (COMDTINST M16500.6).**

Qualified Inspector

Inspections shall be conducted by a qualified inspector from the servicing USCG CEU or District (oan) and a certified major aids technician from the primary servicing unit.

Inspections should be consolidated with scheduled inspections to eliminate duplicate trip visits.

The unit conducting the WAMS, if not the primary servicing unit, should make every attempt to have a representative present at the inspection.

If Unable to Inspect

If a unit is unable to complete a major aid inspection, the unit should:

- talk with the primary servicing unit,
- review reports of the most recent visit to the aid,
- review any pending SSMRs for the aid, and
- talk with the servicing USCG CEU to determine status of any pending issues regarding the aid.

Evaluate Charts

Intro

One of the first places to look when starting a WAMS is at existing charts and surveys. These items provide:

- an overview of the area,
- information on channel characteristics and waterway characteristics, and
- a variety of other basic information.

What to Review

Obtain and review:

- NOS/DMA charts of the area - look for various scales of the same area
- ACOE Project Surveys of any federally maintained channels
- Locally published charts (state and harbor charts)
- NOAA Hydrographic Surveys

What to Look For

Review the charts and surveys to:

- determine if they are current and correct,
- ensure they provide sufficient information for the mariner to safely transit the waterway, and
- determine accuracy of hydrographic data.

Complete and Review Chart Work

Introduction The WAMS process is an excellent way to ensure that the chart reflects what is actually out on the waterway for the mariner. Although much of this work is done on a continual basis by District OAN, a WAMS report provides the opportunity for an in-depth, comprehensive review of area charts.

General The WAMS report format requires review of the latest charts, bottom surveys and aid assignment lists. If done correctly, this review can also update the Light List, Coast Pilot, ATONIS, and aid files. It is very important that the information in all of these mediums be consistent and correct, especially that which is advertised to the mariners on charts and in publications.
The publishers of many of these documents, charts included, rely heavily on user input to keep them honest and up-to-date. Correcting and reviewing chart work as part of the WAMS process can ensure that only accurate information is given to the responsible agencies.

Note Though not specifically required, it is very useful to have an up-to-date chart as part of the WAMS report. For smaller waterways, chartlets and photocopies may be sufficient, but major ports should have the actual chart as part of the report. This allows a visual presentation of what is available to the mariner at that point in time. If there is an incident in the waterway where the WAMS needs to be consulted, it is handy to have the chart available. In addition, when the WAMS is reviewed, comparisons can be made, and improvements noted.

Complete Necessary Chartwork

Intro

Legible, accurate charts are an important portion of the WAMS report. By providing accurate well organized charts, the WAMS author can significantly improve the readability of the WAMS report and more easily convey information.

Chart Selection

Include actual charts of the waterway which provide the most accurate picture of the waterway.

As a rule of thumb, use the largest scale chart available.

Required Additions

Plot the following information on the chart submitted with the WAMS report:

- commonly used tracklines,
- recommended AtoN changes,
- daytime & nighttime arcs and ranges of visibility of AtoN in the waterway,
- locations of applicable casualties,
- RRF regions (i.e. turn regions, recovery regions, and trackkeeping regions) if applicable,
- DRF information for each AtoN,
- locations of major facilities.

Avoiding Clutter

To avoid cluttering the chart, one may have to divide the information and plot on several different charts.

Evaluate Existing Ranges

Reference

Range Design Computer Program (COMDTINST M16500.4A)

Definition

Ranges are pairs of beacons commonly used to define a line down the center of a channel.

Lateral Sensitivity

Lateral sensitivity (K) is a measure of the effectiveness for finding and maintaining track on the range axis.

Range Usage Guidelines

Following are general guidelines for evaluating ranges:

- Construction of a range may enable the AtoN manager to increase aid spacing of other minor aids in the waterway.
- Ranges cannot accurately mark turns.
- In areas of heavy two way traffic, the manager may consider using upbound and downbound ranges or quarterline ranges.

Design Program

District (oan)s and USCG CEUs maintain the Range Design computer Program. This simple to use program can provide the following information on existing or proposed ranges:

- lateral sensitivity,
- required light intensity and dayboard size, and
- required height of structures.

In many cases, district (oan) and the USCG CEU will already have results for existing ranges on file.

Note

Operational units are not on the distribution list for the Range Design Program. If you require a copy of the program, contact the district (oan), USCG CEU, or Commandant (G-SEV).

Evaluate Servicing Units

Intro

When looking at your assigned aids, pay attention to the assigned servicing unit. Occasionally you may find that the assigned unit is not the best unit for the job.

What to Look For

Look for the following when evaluating servicing units:

- aid types,
- unit type (small ANT/large tender)
- platform type (TANB, WLM, etc.)
- number of aids assigned to the unit,
- transit distance/unit's oparea size, and
- availability of other AtoN units.

Recommendations

Upon review of the servicing units, you may find yourself wanting to make recommendations for change. Some of the most common recommendations:

- reassign aids,
- increase/decrease current servicing unit's staffing,
- reassign homeports, and
- increase additional platforms for the unit.

Evaluate Radio and Satellite AtoN

Intro

Racons, Loran C, GPS and DGPS are important navigational aids used by mariners. Although generally outside of the scope of the WAMS' ability to make changes. The WAMS author should review the available radio and satellite aids and comment as appropriate.

Racons

Racons can be an important aid supplement to enable the mariner to identify specific aids or bridge spans. If in an area where aid identification or bridge span identification is difficult due to low visibility or high traffic, the addition of a racon should be considered.

Loran C

Although quickly becoming obsolete, some users still utilize Loran C because of its repeatability. Review its use by local users and comment in the WAMS.

GPS/DGPS

GPS and DGPS are quickly taking over as the premiere electronic navigation means. With its ability to allow mariners to determine positions precisely and continuously, the reliance on DGPS/GPS is increased. While conducting your WAMS, review the use and coverage of GPS and DGPS in your area and comment on its adequacy or inadequacy for user needs.

Evaluate Positioning Control

Positioning Method	Determine the method used to position the aids in the waterway. For the vast majority of waterways, DGPS or GPS will be the method used for AtoN positioning. If Horizontal Sextant Angles or GPS must be used, the quality of horizontal control available must be compared to the mariners' needs for the waterway.
Horizontal Control Defined	Horizontal control is the geometric relationship between the aid and the objects available to position it. Aids located where the objects are close and spread around the horizon will generally have "good" horizontal control. Aids where the objects are farther away, or grouped together will have "poor" horizontal control.
DGPS	Horizontal control is generally not considered when in an area where aids are positioned with DGPS.
GPS	Horizontal control is considered adequate for aids positioned with GPS when they have a DPT value of 150 yards.
Horizontal Sextant Angles	When Horizontal Sextant Angles are the primary means used for positioning the aid, the desired positioning tolerance (DPT) must be compared to the achievable positioning tolerance (usually the AEE). If the AEE is larger than the DPT, horizontal control should be improved.
Improving Horizontal Control	Horizontal control can be improved by the recovery of survey markers (benchmarks) or by having additional objects surveyed. This should be accomplished by the use of local funds when available. If the District lacks the funds, requests should be sent to G-OPN.

Obtain and Plot Casualty Data on Chart and Look for Trends

Guidance

Obtain accident history on waterway and plot locations on chart. Look for trends and recommend appropriate action.

Obtain Info

Contact the following to obtain info on casualties in your area of review.

- Vessel Traffic Service.
- G-NRS: maintains CG database of Search and Rescue Management and Information System (SARMIS).
- District osr: maintains District (SARMIS).
- G-M: maintains Marine Safety Information System (MSIS).
- Various Federal, state, and city agencies.
- Local Group or Station or other units' SAR files.

Plot

Review the collected information and plot the location of the mishap and its cause on the appropriate chart.

Identify Trends

Once the information is collected and plotted look at the data to determine if there are any prevalent trends. For example:

- numerous accidents in a specific area,
- numerous accidents from a specific cause such as human error, and
- pay special attention to any accidents with AtoN as a contributing cause.

The trends you identify may help you later, will be summarized in your WAMS report and will be used in your decision making processes.

Run ARRF Program

Reference

- Waterway Design Manual, DOT Report: CG-D-18-92
- NATON School Handout - "Automated Relative Risk Factor Computation Program"

Intro

The Automated Relative Risk Factor program (ARRF) is a Coast Guard computer program that enables the user to better determine the relative risk of grounding inherent in a waterway based upon the waterway's geographical features, user type, and short range aid configuration.

Why?

The ARRF aids the waterway designer when completing Waterway Analysis and Management System Reports and provides the following benefits:

- Serves as a supplement to the aid system guidelines found in chapter four of the AtoN Administration Manual.
- Allows the program user to compare risk between different regions within a waterway.
- Allows the program user to compare risk between different aid configurations for a waterway region.
- Serves as an additional tool in the WAMS process.

When?

The ARRF should be used whenever conducting a WAMS of a waterway with a designated channel(s) with generally larger vessel traffic.

How?

Specific guidance for using the ARRF program can be found in the Waterway Design Manual and NATON School's job aid handout.

Design Vessel

Normally for a WAMS analysis, you should use the ACOE's design vessel as stated in the ACOE General Design Memorandum.

Note

It is strongly recommended that the user of the ARRF program review the program instructions and continuously turn to the references when working with the program.

Run Computer-Aided Mooring Selection Guide Program

Reference

MOORSEL User's Guide

Intro

The Computer-Aided Mooring Selection Program (MOORSEL), is an MS-DOS program designed to make easy work out of selecting the proper mooring for your buoys.

What does it do?

MOORSEL helps you design buoy moorings using the computer to perform the complicated calculations required to determine chain size, chain length, sinker size, bridle size, and bridle length for a floating AtoN.

When to Use?

The MOORSEL program should be used:

- to verify the effectiveness of existing moorings,
- when a new mooring is attached to a buoy, and
- whenever a new aid is established or proposed.

How to Use?

MOORSEL is a user friendly program that can be learned very easily and quickly through hands on practice. However, always refer to the User's Guide for complete instructions for using the program and interpreting its results.

Run Solar Calculations

Reference SOLARCALC, Solar Design Program, COMDT(G-SEV)

The Manual

♦ The SOLARCALC manual assists you in using the SOLARCALC program in designing and evaluating solar powered major and minor aids to navigation.

SOLARCALC Program

The purpose of the SOLARCALC program is to:

♦ Determine Array size appropriate for AtoN, and
♦ Determine Battery size appropriate for AtoN when characteristics/lamp combinations fall outside the tables shown in chapter 12 of the AtoN Technical Manual.

Guidance Ensure all minor and major aid battery and array configurations are in accordance with SOLARCALC Manual.

Run Range Design Computer Program

Reference

Range Design Computer Program Manual (COMDTINST M16500.4A)

Intro

The Range Design Computer Program allows a user with little familiarity with the fundamentals of range design to evaluate or develop a proposed range.

What does it do?

The Range Design Computer Program provides the user with:

- required optic intensities,
- dayboard lengths and required height above water,
- tower heights and separation,
- and range sensitivity calculations.

This data can be used to determine appropriate or adequate hardware requirements.

When to use?

If you are proposing the building of a new range or changing the ranges current location or hardware, the Range Design Program should be utilized.

How it works

For instructions on using the Range Design Computer Program, refer to user's guide. The program can be challenging for a new user.

Note

The Range Design Program is maintained at the district (oan), CEUs, and COMDT (G-SEV). ANTs and Tenders are not on distribution for the program. Normally, the field unit is not required to perform Range Design calculations. However, if required to use the program, contact your oan for a copy.

Section 7 – WAMS Report Compilation

Intro

This section of the job aid covers the actual compilation and writing of the WAMS report.

In this Section

This section is divided into seven steps.

Step	Title
1	Analyze Collected Data and Information
2	Determine Criticality
3	Write the WAMS Report
4	Complete the Action Summary
5	Complete Form 3213
6	Complete Form 3213A
7	Complete Cost of Proposals

Analyze Collected Data and Information

Intro

Once all your data is collected, the process of analyzing the information can be a cumbersome chore to wade through. Organization and clarity will help you finish the process in a timely and efficient manner.

General

The following is a suggested process which some units have found helpful when conducting the data analysis:

Step	Title
1	Classify and divide the collected information into natural categories (i.e. user input, computer program results, etc.)
2	Analyze the input from each individual category. Use this analysis to draw conclusions based on the individual category.
3	Once your individual categories have been analyzed, compare the results from the individual categories with one another.
4	Use the inter-category comparisons as your final analysis and make your recommendations.

Determine Criticality

Reference Para 3.C.1 of the AtoN Administration Manual

Intro The criticality of a waterway helps to determine both the importance of the waterway and its AtoN system and the required review schedule for a waterway's WAMS report.

Defined A critical waterway is a waterway where a degradation of the AtoN system would present an unacceptable level of risk from either an environmental, navigational or military standpoint.

Types Defined There are four categories of criticality. They are:

- Noncritical - a degradation of the AtoN system will not increase the level of risk in the waterway to an unacceptable level.
- Navigationally Critical (CN) - a degradation of the AtoN system will result in an unacceptable level of risk of a marine accident in the waterway.
- Environmentally Critical (CE) - a degradation of the AtoN system will result in an unacceptable level of risk to public safety or the environment.
- Militarily Critical (CM) - a waterway which serves the military or militarily essential facilities (i.e. steel mills, utilities, etc.).

Assign Types The following concepts will assist you in determining the criticality category(s) of your waterway:

- A waterway will be either noncritical or a combination of the critical categories.
- A waterway can be any combination of the three critical types. For example: A waterway may be CN and CE or another waterway could be CN, CM, and CE.
- Different segments within the same waterway can have different categories of criticality.

continued on next page

Determine Criticality, continued

Assign Types Cont.

Determine criticality by looking at the waterway as a whole vice one segment or aspect. Criticality should be representative of a broader view of the waterway.

♦ As a WAMS project officer, you will most likely be reviewing a criticality designation assigned by the district or previous WAMS. Verify if the previous criticality determination is still valid. If not, recommend reassigning the criticality categories.

Review Schedule

The following is the review schedule for critical and noncritical waterways.

♦ Critical waterways - a critical waterway and its WAMS report shall be reviewed every five (5) years.

♦ Noncritical waterways - a noncritical waterway and its WAMS report will be reviewed only when deemed necessary (i.e. when a major change takes place such as a facility opening or closing or a new channel project).

Help?!

If you are unsure how to assign the waterway's criticality categories, contact your district (oan). The (oan) may be able to provide assistance or additional information which will help you make these decisions.

Write the WAMS Report

Reference Enclosure 5, AtoN Administration Manual

Intro The actual writing of the WAMS report is a simple evolution that requires a relatively short amount of time if you have thoroughly completed your data gathering and analysis.

Process Enclosure 5 of the Admin. Manual contains a complete step by step outline to follow when writing your WAMS report.

Initial vs. Reviews Remember:

- Initial WAMS - an initial WAMS is a lengthy paper that completes the entire WAMS process and provides complete documentation of the waterway.
- WAMS Review - a WAMS review is a shorter document and is a review of the initial WAMS. Therefore, the documentation only needs to validate the existing WAMS and document changes to the waterway and proposed actions.

Note The format provided by Enclosure 5 should be referred to for both the initial and review WAMS, but when completing a review, DO NOT REINVENT THE WHEEL!

Complete Action Summary

Intro

Although, only a small piece of a WAMS, the action summary is the single most important piece of your WAMS report.

Defined

The action summary contains the action items resulting from the WAMS report. In this section, you will list all the changes, modifications, additions, or deletions required by your analysis of the waterway and its supporting information.

What to Include

The following are some of the items most commonly addressed in the action summary:

- Recommended aid changes.
- Required resource or staffing changes.
- Changes required for supporting documentation (i.e. Coast Pilot, chart, etc.)
- Any other items requiring action to be taken.

Note

The purpose of the action summary is to consolidate all results in one concise section. Therefore:

- the Action Summary should be a brief list, NOT a detailed discussion. The justification for your recommendations is the remainder of your report.

Complete Form 3213

Intro

Form 3213 is the official form used to request, document, and authorize a change to Coast Guard Aids to Navigation.

Note

Form 3213 is found in Forms Plus/Forms Menu.

Actions

To fill out the form, enter information in the numbered blocks as follows:

2. Enter District Project Number (ANDP-XX-XXX) if known.

3. Enter location - use Light List headings.

4. Enter the date.

5. Enter the charts that the project will affect.

6. Enter the number of 3213A's. This will be the same as the number of aids that you want to establish or change.

7. Explain briefly what you want to do. Start your sentences with one of the following words: Establish, Relocate, Discontinue, or Change. For example, "Establish 2 lights, Relocate 4 daybeacons, change lighting characteristics of 3 buoys, and change 4 unlighted buoys to beacons."

8. Explain why you want the change. If it's a WAMS study and the documentation is explained in the WAMS, just cite "WAMS #XXXX." If you are following up on a letter from a pilots association, just say "see attached" and forward the letter.

9. Attach a draft or actual copy of your Local Notice to Mariners detailing the changes proposed.

10. Enter cost information if you have it. District (oan) or CEU can assist.

11. If the project is over $10,000, check the box for AC&I.

13: If the project will affect the number of buoy stations 3/C and larger, enter the unit with primary servicing responsibility (unit), hull size & type (type), and the number of hulls added or deleted (on station). This information is essential for proper buoy body management. Make sure the information here is for the AUTHORIZED hull listed in ATONIS - not the onscene hull if you are using a different one temporarily.

Complete Form 3213A

Intro

Form 3213A is required anytime installed equipment or the advertised signal is changed. The information contained in the form is needed to update the ATONIS database correctly. When a project is of a magnitude great enough that it will require OPN approval, Form 3213A will be used by G-SEV to verify that the appropriate optic design has been chosen.

Actions

To fill out the form, enter information in the numbered blocks as follows:

1. Enter District Project Number (ANDP-XX-XXX) if known.

2. Enter aid name/LLNR as it appears in the Light List.

3. Enter the date.

4. Enter specifics for the type of optic you desire.

    a. Nominal Range
    b. Obsolete. Leave blank.
    c. 12V or 120V? What lamp size?
    d. Type of Optic. (eg. 155mm, RL-355, etc.)
       3, 8, 11, 20, 28 degree spread lens?
       Does optic rotate?
    e. Characteristic & color (eg. Q W, Fl R 6s)
    f. intensity in candela as published in Luminous Intensities Manual
    g. CG-181 (.2 V)? FLAC-300 (120 V)?
    h. CG-6P, CG-4P?
    i. Type C (white) L (long lead) or R (red/green)

5. Enter fog signal info if so equipped.

6. Enter RACON info if so equipped.

7. Enter solar array or 120 V power info. Use Solar Design Manual & standard solar sizing tables.

8. Enter structure information. If structure is on land, has a lease been obtained. If not, enter property owner POC under "Remarks."

Calculate Cost of Proposals

Reference

- Standard Rates (COMDTINST 7310.1 (series))
- AtoN Stock Listing
- Annual Price Lists for AtoN Equipment (available from district (oan) or Commandant (G-SEV)
- Sample D8 (oan) AtoN Cost Estimate Forms

Intro

As with any job we attempt to do, the availability of funds will impact the final product. A rough estimate of project cost can be a useful additional planning tool when completing the WAMS.

How To

If recommending a change to your waterway (equipment change, establish, disestablish) you can determine a rough cost estimate of the project by using a cost estimate form, CG Standard Rates, and the annual price listing.

Step	Action
1	Identify aid hardware requirements/changes.
2	Identify hull or structure requirements or changes.
3	Using price listings for hardware, structures/ hull, complete AtoN Cost Estimate form.
4	Identify servicing unit and required servicing time for the aid.
5	Compare servicing time and unit type with the Standard Rates information to develop servicing cost.

Help?

If you need additional assistance in developing the cost of the project, contact the district (oan) or Commandant (G-SEV).

Section 8 – Post Report Processing

Intro

With the completion of the writing of the WAMS report, almost all the work is done except for forwarding the report, additional documentation, and providing feedback to the involved parties.

In this Section

This final section is divided into five steps.

Step	Title
1	Forward WAMS to OAN
2	Forward WAMS to G-OPN
3	Forward Hydrographic Survey Request
4	Feedback to Users
5	Feedback to CG Units from OAN

Forward WAMS to OAN

Introduction

Finally, you think you're done with your WAMS, and you're ready to mail it out. Here are a few last items to keep in mind.

Advance Copy

Once you have a draft copy of your WAMS report completed, forward a copy of the text to the district WAMS officer.

Generally, the district WAMS officer can quickly and briefly glance through the report to make sure it is complete and covers the district's prerequisites. If there are any problems or additional information required, your district WAMS officer can inform you before you submit the final version.

Final Copy

Your district may have specific requirements for the information they want forwarded and the format for the information. However, at a minimum, you should forward:

- a copy of the text of the report,
- the chart(s) of the waterway (or a reproduction) with the required amplifying information,
- copies of computer program results (ARRF, etc.)
- copies of user feedback (surveys, user ride reports)
- any other supporting information you may deem appropriate (i.e. ATONIS/APRs requiring changes, casualty data, etc.).

Note

Do not forget to keep complete copies of the WAMS and all its enclosures. Sometimes the mail gets lost!

Forward WAMS to G-OPN

Introduction

The unit has completed the WAMS and the district has approved the report. Commandant (G-OPN) receives copies of all WAMS reports. However, the information that needs to accompany a report to HQ is somewhat different.

Info Included

The critical WAMS report information forwarded to G-OPN from the district (oan) includes:

- Executive summary of the WAMS report
- Copy of the district's approval recommendation
- A copy of the text of all critical WAMS reports
- Significant items or sections of the enclosures

Executive Summary

The executive summary is a brief (1 to 2 page) summary of the WAMS analysis and the district's approved recommendation. The executive summary is prepared by the district (oan).

Note

G-OPN neither needs nor wants the complete WAMS report. For their purposes, the text, executive summary, and 3213 are generally enough for their records.

WAMS Funding

Although many projects recommended by WAMS reports require additional funding from G-OPN, the funding requests are normally handled by the district (oan) project officer and are submitted concurrently with the WAMS report.

Forward Hydrographic Survey Request

Defined

A hydrographic survey request is provided to NOAA for additional bottom and depth surveying for a waterway or specific portion of the waterway that is not an AOCE maintained channel.

When to Submit

Occasionally during the WAMS process, a new survey will need to be conducted. This occurs most often when:

- shoaling has changed water depth,
- previous surveys did not cover a specific area adequately, and
- a survey has never been conducted.

Who Submits

Requests for Hydrographic Surveys are normally generated at the district (oan).

Sample

A sample Hydrographic survey request letter is enclosed.

Sample Hydrographic Survey Request

16519
Ser. 465-95
October 19, 1995

Department of Commerce/NOAA
Chief, Hydrographic Surveys Branch
N/CG24 Station 6838
1315 East-West Highway
Silver Spring, MD 20910-3282

Gentlemen:

Currently we are conducting a waterway analysis and management system report for Tawas Bay on Lake Huron, chart 14863, Tawas Bay Inset. We have determined that the red sector on TAWAS LIGHT (LL 11240) does not properly mark the shoal on the west side of Tawas Point. TAWAS LIGHT currently shows a red sector from 045T to 135T as observed from a vessel toward the light. Also, we are evaluating the need for further marking of shoal water northeast of Tawas Harbor Lighted Buoy 4 (LL 11250).

In order to implement these possible aids to navigation improvements to safely mark this area of Tawas Bay, we request that you conduct a hydrographic survey of this area, specifically the area bounded by latitudes 44-16N to 44-14N, between longitudes 83-26W to 83-29W.

Please advise when you will be able to perform this survey. If you require additional information, please contact Chief Petty Officer Settersten of my staff.

Sincerely,

K. S. WELLS
Lieutenant Commander, U.S. Coast Guard
Acting Chief, Aids to Navigation and
Waterways Management Branch
By direction of Commander,
Ninth Coast Guard District

Encl: (1) Chartlet of Tawas Bay
(2) Copy of Light List

Copy: Commanding Officer, Coast Guard Cutter BRAMBLE(WLB 392)
Officer in Charge, Coast Guard Station St. Ignace

Feedback to Users

Introduction

Users who have taken the time to fill out questionnaires, reply to comment requests in the Notice to Mariners, or provide user rides deserve feedback. They have given of their time to help improve the waterway, and these are the type of involved and concerned boaters that the Coast Guard wants to support and encourage.

General

The following are some general ways to provide feedback:

- Thank you letters.
- Follow-up phone calls, or calls on a regular basis (quarterly, monthly, biannual, etc.).
- Send a copy of the completed WAMS report.
- Compile a statistical report of comments and info.

If you provide simple feedback in a timely manner, the user will be more likely to comment or help in the future. It's the little extra effort that makes the difference.

Note

It is important to remember that communicating with users raises their expectations. Be very careful not to make promises you can't keep, for example, providing a new aid next week. Users must be gently informed that their suggestions may take years to implement, or may not happen at all. An honest rejection of an idea is better than no feedback at all.

Feedback to CG Units from OAN

Introduction Hopefully, during the WAMS process, the WAMS project officer and district (oan) have been in continuous contact. Now that the report is done, (oan) should provide feedback to the unit about their report.

General Coast Guard units can serve many different roles in the completion of a WAMS report. These include:

- Preparing Unit.
- Servicing Unit.
- Information gathering and commenting unit.
- Local user.

The type of feedback these units require differs with their roles in the process. In general, however, feedback should always be timely and professional, as all correspondence (even E-mail) may be part of the WAMS report.

Format The format of feedback that District OAN provides for a WAMS preparing unit differs from that for the Coast Guard units with other roles.

The **Preparing Unit** is responsible for completion of the WAMS report, however, District OAN has the final approval authority. Once the report is submitted to OAN, a thorough review should take place and specific comments returned to the unit. These may include directions to add, improve, or edit the report. When the report meets guidelines of District OAN, an approved copy with an endorsement letter should be returned to the unit.

The Units which act as local users, information gatherers, and also the servicing units should be treated much like those in **FEEDBACK to USERS.** Thank-you letters, copies of the final WAMS report, and follow-up phone calls are all appropriate methods of providing feedback to these Coast Guard units.

Note Not all Coast Guard units work directly for the District (i.e. ANTs, Stations), if at all (i.e. WHECs, WMECs). When requesting information or providing feedback, the proper chain of command should be followed and kept informed at all times.

Corrections and Comments

It is hoped that you found this job aid to be a useful tool during the completion of your WAMS project. In a continuous effort to ensure this job aid remains current and correct, please take a few moments to comment on changes, corrections, additions or deletions which will improve this job aid.

Name: _____ **Rank/Title:** _____

Address: _____

_____

_____

Phone: _____

Please forward a copy of these suggestions to the NATON School and your District (oan).